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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/862,894	05/22/2001	Mitsuhiro Nakamura	09792909-5022	9845

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ROBERT J. DEPKE LEWIS T. STEADMAN  
HOLLAND & KNIGHT LLC  
131 SOUTH DEARBORN  
30TH FLOOR  
CHICAGO, IL 60603

EXAMINER

KITOV, ZEEV

ART UNIT PAPER NUMBER

2836

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/862,894

Applicant(s)

NAKAMURA ET AL.

Examiner

Zeev Kitov

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 - 14 is/are allowed.
- 6) ☒ Claim(s) 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 15 is rejected under 35 U.S. C. 103(a) as being unpatentable over Tsuzuki et al. in a view of Vaudo et al. (US 6,156,581). Tsuzuki et al. disclose a semiconductor device comprising a protection circuit for protecting a gate electrode of a field effect transistor (element 22 in Fig. 10) against surge breakdown, wherein the protection circuit includes a first junction diode unit made of a plurality of diodes in which a cathode or an anode is connected to the gate electrode, and a second diode unit made of a plurality of diodes in which an anode or a cathode is connected to the anode or the cathode of the first diode unit (elements 73 in Fig. 10). Examiner takes an Official Notice that the zener diodes are the junction diodes, thus satisfying the limitation of the Claim. However, the filed effect transistor of the reference is not a hetero-junction field effect transistor. Vaudo et al. disclose the high electron mobility transistor (col. 16, lines 37 – 46), which as well known in the art, is hetero-junction filed effect transistor. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the Tsuzuki et al. solution by replacing adding

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field effect transistor by the hetero-junction field effect transistor according to Vaudo et al., because (i) as well known in the art, the high electron mobility transistors are the high speed transistors and therefore, can provide the fastest possible shunting action and (ii) according to Vaudo et al. (col. 4, lines 53 –60), the hetero-junction field effect transistors require the ESD protection.

***Allowable Subject Matter***

Claims 1-9 and 13-14 are allowed. The following is an examiner's statement of reasons for allowance.

Claims 1-9 and 13-14 recite, inter alia, a protection circuit for a junction field effect transistor for protection against a surge breakdown comprising a Schottky barrier diode array having a plurality of forward direction first diodes and reverse direction second diodes are cascade-connected wherein a gate electrode of the FET is grounded through the diode array.

Tsuzuki discloses a protection circuit (Fig. 10) for a field effect transistor (22) for protection against a surge breakdown comprising a diode array (73) having a plurality of forward direction first diodes and reverse direction second diodes are cascade-connected wherein a gate electrode of the FET is grounded through the diode array but doesn't specify that the diode array is a Schottky barrier diode array.

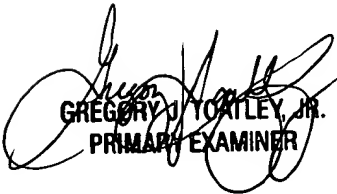
The references of record do not teach or suggest the aforementioned limitation, nor would it be obvious to modify those references to include such limitation.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeev Kitov whose current telephone number is (703) 305-0759. Due to moving to a new location on January 28, 2004 the number will change to (571) 272-2052. The examiner can normally be reached on 8:00 – 4:30. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (703) 308-3119. The fax phone number for organization where this application or proceedings is assigned is (703) 872-9306 for all communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Z.K.  
12/22/2003

  
GREGORY J. YORTLEY, JR.  
PRIMARY EXAMINER